

**Abstract**

The invention relates to a lead substitute material for radiation protection purposes, wherein the lead substitute material comprises from 12 to 22 wt.% matrix material, from 0 to 75 wt.% Sn or Sn compounds, from 0 to 73 wt.% W or W compounds, from 0 to 80 wt.% Bi or Bi compounds, and wherein not more than one of the constituents is 0 wt.%, for nominal overall lead equivalents of from 0.25 to 2.00 mm. The invention relates further to a lead substitute material that additionally comprises one or more of the elements Er, Ho, Dy, Tb, Gd, Eu, Sm, La, Ce, Nd, Cs, Ba, I, Ta, Hf, Lu, Yb, Tm, Th, U and/or their compounds and/or CsI.